

REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

Claims 1-14 have been cancelled in favor of new claims 15-28, which better define the subject matter Applicants regard as the invention. These claim amendments have been made solely for clarity and not for a reason related to patentability.

Therefore, no estoppel should be deemed to attach thereto.

Support for the subject matter of new claims 15-28 is provided by original claims 1-14, respectively.

Claims 1, 4, 5, 7, 10, 11, 13, and 14 were rejected, under 35 USC §102(b), as being anticipated by Inata et al. (US 4,593,301). Claims 2, 3, 6, 8, 9, and 12 were rejected, under 35 USC §103(a), as being unpatentable over Inata. Applicants respectfully traverse these rejections, as discussed below in relation to claims 15-28.

Claim 15 recites:

A heterojunction field effect transistor comprising:

an epitaxial substrate comprising a plurality of semiconductor layers including an undoped buffer layer formed over a semiconductor layer, an active layer formed over said buffer layer, and at least one N-type carrier supply layer, doped with an impurity for supplying an electron to said active layer, formed over the upper side or both over the upper side and under the lower side of said active layer;

a gate electrode formed on said epitaxial substrate and extending from the surface of said epitaxial substrate to said buffer layer; and

N-type source and drain areas formed in predetermined areas of said epitaxial substrate, each of said source and drain areas formed to one side of said gate electrode, wherein:

said upper-side N-type carrier supply layer, between said source area and said drain area, is doped with Selenium (Se) or Tellurium (Te), or

at least one of said upper- and lower-side N-type carrier supply layers, between said source area and said drain area, is doped with Selenium (Se) or Tellurium (Te).

Inata fails to disclose the feature recited in claim 15 of an N-type carrier supply layer that is doped with Selenium or Tellurium. The Office Action proposes that Inata discloses this feature in column 6, lines 12-20 (see Office Action page 3, penultimate paragraph).

Contrary to the position asserted in the Office Action, Inata actually discloses in Fig. 7 an n-type carrier supply layer 15 that is formed of AlGaAs and doped with Si (Inata col. 6, lines 3-7). Inata does not disclose a carrier supply layer that is doped with Selenium or Tellurium. In the cited portion of Inata's patent discussing Selenium doping, Inata discloses that source and drain regions 17 are ion implanted with high doses of Selenium impurities to produce n<sup>+</sup> source and drain regions 17 (col. 6, lines 12-20).

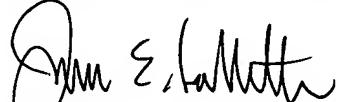
Inata's carrier supply layer 15 and source and drain regions 17 are not the same thing, as acknowledged in the Office Action. Specifically, the Office Action states that Inata's reference character 15 corresponds to the carrier supply layer, previously recited in claim 1 and now similarly recited in claim 15, and reference character 17 corresponds to the drain and source areas, which were recited in claim 1 and are now similarly recited in claim 15 (see Office action page 3, fourth and sixth paragraphs). Since Inata's carrier supply layer 15 and drain and source regions 17 are no the same thing, it necessarily follows from the above discussion that Inata does not disclose doping the carrier supply layer 15 with Selenium or Tellurium.

Accordingly, Applicants submit that Inata does not anticipate the subject matter defined by claim 15. Independent claims 19, 21, and 25 similarly recite the feature distinguishing apparatus claim 15 from Inata, though claims 21 and 25 do so with respect to method claims. For similar reasons that this feature distinguishes claim 15 from Inata, so too does it distinguish claims 19, 21, and 25. Therefore, allowance of claims 15, 19, 21, and 25 and all claims dependent therefrom is warranted.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,



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